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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/650,132 | 08/28/2003 | Sumitaka Maruyama | 008312-0305728 | 5527 |

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EXAMINER

GIESY, ADAM

ART UNIT PAPER NUMBER

2627

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|-----------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/650,132 | MARUYAMA ET AL. | |
| | Examiner | Art Unit | |
| | Adam R. Giesy | 2627 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The amendment filed 12/29/2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The formula on page 5 at line 16 and page 12, line 16 thru page 13, line 2 was originally given units of microns, not mm. The original formula with the proposed errors is also present on page 1 of the priority document. **If the applicant believed these to be errors, then the applicant should have filed a CIP application to correct it.**

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The formula on page 5 at line 16 and page 12, line 16 thru page 13, line 2 was originally given units of microns, not mm. The original formula with the proposed errors is also present on page 1 of the priority document.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5, 7-10, 12, and 14-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Watabe et al. (hereinafter Watabe '915 - US Doc. No. 2005/0237915 A1).

The applied reference has a common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Watabe '915 discloses an optical disk which is constructed in such a manner that an information recording layer formed on a substrate is covered with a light transmission layer and in which the range of the thickness and the refractive index of the light transmission layer is set so that aberration due to a deviation of the thickness and the refractive index of the light transmission layer from each standard value falls within the range of certain acceptable values, wherein the thickness t of the light transmission layer is set within the range of $f(n) - t_1 \leq t \leq f(n) + t_2$, employing

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function $f(n)$ of the refractive index n of the light transmission layer and constants t_1 , t_2 determined based on an acceptable value of aberration in the light transmission layer (see page 1, equation 2; see also page 5, paragraph 91), the refractive index of the light transmission layer is set within the range of 1.45 to 1.75 (page 5, paragraph 94), and the function $f(n)$ is shown by $f(n) = ((A1 \times n^3) / (n^2 - 1)) \times ((n^2 + A2) / (n^2 + A3))$ (mm) employing constants $A1$, $A2$, $A3$ (see page 6, claim 16).

Regarding claim 2, Watabe '915 discloses all of the limitations of claim 1 as discussed in the claim 1 rejection above and further that the refractive index of the light transmission layer is set within the range of 1.5 to 1.7 (page 6, paragraph 114).

Regarding claim 3, Watabe '915 discloses all of the limitations of claim 1 as discussed in the claim 1 rejection above and further that the wavelength of the laser light which is incident onto the light transmission layer is set within the range of 395 to 415 nm (page 4, paragraph 82).

Regarding claim 5, Watabe '915 discloses all of the limitations of claim 1 as discussed in the claim 1 rejection above and further that minimum values of the constants t_1 , t_2 are substantially set to 10.μm (page 5, paragraph 97).

Regarding claim 7, Watabe '915 discloses all of the limitations of claim 1 as discussed in the claim 1 rejection above and further that predetermined positions on curved lines that $f(n)-t_1$ and $f(n)+t_2$ show are sampled, and an area encircled by connecting each sample point by means of straight lines is set as the range of the thickness t of the light transmission layer (see page 5, paragraph 104).

Regarding claim 8, Watabe '915 discloses an optical disk which is constructed in such a manner that a plurality of information recording layers are laminated by sandwiching a space layer having a light transmission property therebetween on a substrate and are covered with a light transmission layer, wherein the thickness t of the light transmission layer is set to $f(n) - t_1$ or more, employing function $f(n)$ of the refractive index n of the light transmission layer and constants t_1 , t_2 determined based on an acceptable value of aberration in the layer comprising the light transmission layer, the information recording layers, and the space layer, the sum of thicknesses of the light transmission layer, the space layer (page 4, equation 2), and the information recording layer excluding the information recording layer which is closest to the substrate is set to $f(n) + t_2$ or less (page 6, paragraph 112), the refractive index of the light transmission layer is set within the range of 1.45 to 1.75 (page 5 paragraph 94), the refractive index of the space layer is set within the range of +0.0 to -0.15 of the refractive index of the light transmission layer (page 6, paragraph 112), and the function $f(n)$ is shown by $f(n) = ((A1 \times n^3) / (n^2 - 1)) \times ((n^2 + A2) / (n^2 + A3))$ (mm) employing constants $A1$, $A2$, $A3$ (see page 6, claim 16).

Regarding claim 9, Watabe '915 discloses all of the limitations of claim 8 as discussed in the claim 8 rejection above and further that the refractive index of the light transmission layer is set within the range of 1.5 to 1.7 (page 6, paragraph 114).

Regarding claim 10, Watabe '915 discloses all of the limitations of claim 8 as discussed in the claim 8 rejection above and further that the wavelength of the laser

light which is incident onto the light transmission layer is set within the range of 395 to 415 nm (page 4, paragraph 82).

Regarding claim 12, Watabe '915 discloses all of the limitations of claim 8 as discussed in the claim 8 rejection above and further that minimum values of the constants t_1 , t_2 are substantially set to 10.μm (page 5, paragraph 97).

Regarding claim 14, Watabe '915 discloses all of the limitations of claim 8 as discussed in the claim 8 rejection above and further that predetermined positions on a curved line that $f(n) - t_1$ shows are sampled so that the thickness that a straight line connecting each sample point shows is set to a minimum value of the thickness t of the light transmission layer in a corresponding refractive index (page 5, paragraph 104), and predetermined positions on a curved line that $f(n) + t_2$ shows are sampled so that the thickness that a straight line connecting each sample point shows is set to a maximum value of the thickness of the sum of the light transmission layer in a corresponding refractive index, the space layer, and the information recording layer excluding the information recording layer which is closest to the substrate (page 5, paragraph 104).

Regarding claim 15, Watabe '915 discloses an optical disk apparatus comprising: a semiconductor laser element emitting laser light whose wavelength is 395 to 415 nm (page 4, paragraph 82); and a processing unit allowing the laser light from the semiconductor laser element to be emitted to the optical disk to perform recording processing and reproducing processing, for an optical disk which is constructed in such a manner that an information recording layer formed on a substrate is covered with a

light transmission layer and in which the range of the thickness and the refractive index of the light transmission layer is set so that aberration due to a deviation of the thickness and the refractive index of the light transmission layer from each standard value falls within the range of certain acceptable values (see Figure 2, element 30), wherein the thickness t of the light transmission layer is set within the range of $f(n) - t_1 \leq t \leq f(n) + t_2$, employing function $f(n)$ of the refractive index n of the light transmission layer and constants t_1 , t_2 determined based on an acceptable value of aberration in the light transmission layer (page 1, equation 2; see also page 5, paragraph 91), the refractive index of the light transmission layer is set within the range of 1.45 to 1.75 (page 5, paragraph 94), and the function $f(n)$ is shown by $f(n) = ((A1 \times n^3) / (n^2 - 1)) \times ((n^2 + A2) / (n^2 + A3))$ (mm) employing constants $A1$, $A2$, $A3$ (see page 6, claim 16).

Regarding claim 16, Watabe '915 discloses all of the limitations of claim 15 as discussed in the claim 15 rejection above and further that the refractive index of the light transmission layer is set within the range of 1.5 to 1.7 (page 6, paragraph 114).

Regarding claim 17, Watabe '915 discloses an optical disk apparatus comprising: a semiconductor laser element emitting laser light whose wavelength is 395 to 415 nm (page 4, paragraph 82); and a processing unit allowing the laser light from the semiconductor laser element to be emitted to the optical disk to perform recording processing and reproducing processing, for an optical disk which is constructed in such a manner that a plurality of information recording layers are laminated by sandwiching a space layer having a light transmission property therebetween on a substrate and are

covered with a light transmission layer (Figure 2, element 30), wherein the thickness t of the light transmission layer is set to $f(n) - t_1$ or more, employing function $f(n)$ of the refractive index n of the light transmission layer and constants t_1 , t_2 determined based on an acceptable value of aberration in the layer comprising the light transmission layer, the information recording layers, and the space layer (see page 4, equation 2), the sum of thicknesses of the light transmission layer, the space layer, and the information recording layer excluding the information recording layer which is closest to the substrate is set to $f(n) + t_2$ or less (page 6, paragraph 112), the refractive index of the light transmission layer is set within the range of 1.45 to 1.75 (page 5, paragraph 94), the refractive index of the space layer is set within the range of ± 0.1 of the refractive index of the light transmission layer (see page 6, paragraphs 112-114), and the function $f(n)$ is shown by $f(n) = ((A1 \times n^3) / (n^2 - 1)) \times ((n^2 + A2) / (n^2 + A3))$ (mm) employing constants $A1$, $A2$, $A3$ (see page 6, claim 16).

Regarding claim 18, Watabe '915 discloses all of the limitations of claim 17 as discussed in the claim 17 rejection above and further that the refractive index of the light transmission layer is set within the range of 1.5 to 1.7 (page 6, paragraph 114).

Allowable Subject Matter

6. Claims 4, 6, 11, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 4 is allowable over the prior art of record which does not disclose or suggest, alone or in combination, all of the limitations of claim 1 as well as the further

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limitations that constant A1 is 0.26200, constant A2 is -0.32400, and constant A3 is 0.00595.

Claim 6 is allowable over the prior art of record which does not disclose or suggest, alone or in combination, all of the limitations of claim 1 as well as the further limitations that constants t1, t2 are substantially set to 13.mu.m.

Claim 11 is allowable over the prior art of record which does not disclose or suggest, alone or in combination, all of the limitations of claim 8 as well as the further limitations that constants t1, t2 are substantially set to 10.mu.m.

Claim 13 is allowable over the prior art of record which does not disclose or suggest, alone or in combination, all of the limitations of claim 8 as well as the further limitations that constants t1, t2 are substantially set to 22.mu.m.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Watabe et al. (US Doc. No. 2003/0108813 A1) discloses a similar disc and disc apparatus including the layer formula with different constant values.

b. Watabe et al. (US Doc. No. 2005/0237915 A1) discloses a similar disc and disc apparatus including the layer formula with different constant values.


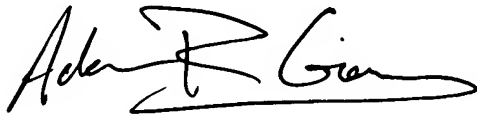
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam R. Giesy whose telephone number is (571) 272-7555. The examiner can normally be reached on 8:00am- 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ARG 6/22/2006



THANG V. TRAN
PRIMARY EXAMINER